

ABSTRACT

A process for reducing the risk of removing metal from an underlying metal structure during a dry etch procedure used to define a borderless, overlying metal line structure, has been developed. After formation of a damascene type, underlying metal structure, deposition of an metal layer and of an overlying silicon oxide layer, is performed. A photoresist shape is used as an etch mask to allow formation of a partially etched metal line structure to be accomplished in the silicon oxide layer, and in a top portion of the metal layer. Insulator spacers are then formed on the sides of the partially etched metal line structure, resulting in a wider, partially etched metal line structure. The hard mask now presented by the defined silicon oxide component of the partially etched metal line structure, is then used as an etch mask allowing a final metal line structure, wider than the partially etched metal line structure, to be obtained. The wider, partially etched metal line structure, used as an etch mask for the final definition of the metal line structure, reduced the risk of exposing portions of underlying metal plug structure during this dry etch procedure thus preventing removal of this material during the definition of the final metal line structure.